

RECEIVED
CENTRAL FAX CENTER

AUG 16 2006

FAX TRANSMISSION

DATE: August 16, 2006

PTO IDENTIFIER: Application Number 10/759,449-Conf. #7829
Patent Number

Inventor: Chin-Jui Chang et al.

MESSAGE TO: US Patent and Trademark Office

FAX NUMBER: (571) 273-8300

FROM: RADER, FISHMAN & GRAUER PLLC

Linda D. Kennedy

PHONE: (248) 594-0619

Attorney Dkt. #: 65765-0085

PAGES (Including Cover Sheet): 36

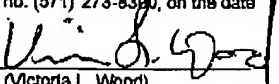
CONTENTS: Amended Appeal Brief (34 pages)
Certificate of Transmission (1 page)

If your receipt of this transmission is in error, please notify this firm immediately by collect call to sender at (248) 594-0619 and send the original transmission to us by return mail at the address below.

This transmission is intended for the sole use of the individual and entity to whom it is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable law. You are hereby notified that any dissemination, distribution or duplication of this transmission by someone other than the intended addressee or its designated agent is strictly prohibited.

RADER, FISHMAN & GRAUER PLLC
39533 Woodward Avenue, Suite 140, Bloomfield Hills, Michigan 48304
Telephone: (248) 594-0600 Facsimile: (248) 594-0810

AUG 16 2006

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office, facsimile no. (571) 273-8300, on the date shown below.	
Dated: August 16, 2006	Signature:  (Victoria L. Wood)

Docket No.: 65765-0085
(PATENT)**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:
Chin-Jui Chang et al.

Application No.: 10/759,449

Confirmation No.: 7829

Filed: January 16, 2004

Art Unit: 1772

For: **SOUND DEADENING AND STRUCTURAL
REINFORCEMENT COMPOSITIONS AND
METHODS OF USING THE SAME**

Examiner: M. A. Patterson

AMENDED APPEAL BRIEFMS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is from the Final Rejection of claims 1-27 set forth in the Final Office Action dated March 22, 2006. A Notice of Appeal was filed April 24, 2006. An Appeal Brief was filed on July 12, 2006 with a petition for a one-month extension of time and the associated fees. A Notification of Non-Compliant Appeal Brief was mailed to Appellants on July 28, 2006. This Amended Appeal Brief is timely filed in response to the Notification of Non-Compliant Appeal Brief.

Application No.: 10/759,449

Docket No.: 65765-0085

TABLE OF CONTENTS

I. REAL PARTY IN INTEREST.....	PAGE 3
II. RELATED APPEALS AND INTERFERENCES.....	PAGE 4
III. STATUS OF CLAIMS	PAGE 5
IV. STATUS OF AMENDMENTS.....	PAGE 6
V. SUMMARY OF CLAIMED SUBJECT MATTER	PAGES 7-9
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL	PAGE 10
VII. ARGUMENT	PAGES 11-19
VIII. CLAIMS APPENDIX.....	PAGE 20-25
IX. EVIDENCE APPENDIX.....	PAGES 26-33
X. RELATED PROCEEDINGS APPENDIX	PAGE 34

Application No.: 10/759,449

Docket No.: 65765-0085

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is: Sika Corporation, assignee, a corporation organized and existing under the laws of the state of New Jersey, and having a place of business at 30800 Stephenson Highway, Madison Heights MI 48071.

Application No.: 10/759,449

Docket No.: 65765-0085

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Application No.: 10/759,449

Docket No.: 65765-0085

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 27 claims pending in application.

B. Current Status of Claims

Claims 1-27 are finally rejected by the Office Action dated March 22, 2006.

C. Claims On Appeal

Claims 1-27 are on appeal.

Application No.: 10/759,449

Docket No.: 65765-0085

IV. STATUS OF AMENDMENTS

Appellant did not file an Amendment After Final Rejection. The Amendment dated December 27, 2005 has been entered.

Application No.: 10/759,449

Docket No.: 65765-0085

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following is a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, as required by 37 C.F.R. § 41.37(c)(1)(v). The following explanation is not intended to be used to construe the claims, which are believed to speak for themselves, nor do Appellants intend the following explanation to modify or add any claim elements, or to constitute a disclaimer of any equivalents to which the claims would otherwise be entitled. References to the Specification herein are intended to be exemplary and not limiting. There are four independent claims described herein: claims 1, 11, 12 and 13.

Independent claim 1 describes an expandable composition that is useful for providing physical reinforcement for a body, such as a hollow structural member of a vehicle. *See* specification page 1, lines 10-15. In particular, claim 1 describes a composition that includes the following ingredients: (a) from about 20-30% by weight of an SBS block co-polymer; (b) from about 5-20% by weight polystyrene; (c) from about 0.5-5% by weight of a rubber; and (d) from about 30-45% by weight of an epoxy resin. The ingredients of this composition, and the weight percentages of the ingredients in the composition, are described in detail as a "particularly preferred embodiment" on page 6 of the specification from lines 1 to 11. This synergistic combination of ingredients (a)-(d) brings about surprising results, especially the ability to retain a surprising amount of compressive strength following substantial expansion. *See* the specification on page 8 lines 9 to 25. In particular, following expansion from 80-220% (or preferably from 95% to 200%), the compressive strength of the expanded material is at least about 1200 psi, preferably at least about 1400 psi, and more preferably at least about 1600 psi. *See* the specification on page 8 lines 9 to 25. These surprising results are exemplified in Example 3. In Example 3, Fina Clear 530 is an SBS block co-polymer, Fina Crystal 500 is

Application No.: 10/759,449

Docket No.: 65765-0085

polystyrene, Nipol 1411 is rubber, and Araldite is epoxy resin. This particular composition expanded 131%, and surprisingly, exhibited a compressive strength of 1822 after such substantial expansion. *See* the specification, page 14.

Independent claim 11 describes “a composition useful for forming a reinforcing body, said composition comprising: from about 20-30% by weight of an SBS block co-polymer; from about 5-20% by weight polystyrene; from about 0.5-5% by weight of a rubber; and from about 30-45% by weight of an epoxy resin, wherein said composition has a percent expansion of from about 80-220% after heating thereof to a temperature of at least about 300°F.” The weight percentages of the ingredients in this composition are described in detail as a “particularly preferred embodiment” on page 6 of the specification from lines 1 to 11. The percent expansion of from about “80-220%” after heating thereof to a temperature of at least about “300°F” is described in the specification on page 8 from lines 9 to 15.

Independent claim 12 describes “a composition useful for forming a reinforcing body, said composition comprising: from about 20-30% by weight of an SBS block co-polymer; from about 5-20% by weight polystyrene; from about 0.5-5% by weight of a rubber; and from about 30-45% by weight of an epoxy resin, wherein said composition has a compressive strength of at least about 1400 psi upon being expanded by heating to a temperature of at least about 300°F.” The percentages of ingredients in this composition are described in detail as a “particularly preferred embodiment” on page 6 of the specification from lines 1 to 11. Heating the composition to a temperature of at least about “300°F” is described on page 6 of the specification from lines 9 to 15. Retaining a compressive strength of at least about “1400 psi” is described in the specification on page 8 from lines 16 to 19.

Independent claim 13 describes “a composition useful for forming a reinforcing body, said composition comprising: from about 20-30% by weight of an SBS block co-polymer;

Application No.: 10/759,449

Docket No.: 65765-0085

from about 5-20% by weight polystyrene; from about 0.5-5% by weight of a rubber; and from about 30-45% by weight of an epoxy resin, wherein said composition has a compressive strength of at least about 1400 psi and a percent expansion of from about 80-220% upon being expanded by heating to a temperature of at least about 300°F.” The weight percentages of the ingredients in this composition are described in detail as a “particularly preferred embodiment” on page 6 of the specification from lines 1 to 11. The percent expansion of from about “80-220%” after heating thereof to a temperature of at least about “300°F” is described in the specification on page 8 from lines 9 to 15. The compressive strength of at least about “1400 psi” is described on page 8 of the specification from lines 16 to 19.

Application No.: 10/759,449

Docket No.: 65765-0085

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. The final rejection of claims 1-2, 4-7, 11-14 and 16-19 and 23-27 under 35 U.S.C. § 103 over U.S. Patent No. 5,755,486 (Wycech) in view of U.S. Patent No. 5,086,080 (Anfuso).
2. The final rejection of claims 3 and 15 under 35 U.S.C. § 103 over U.S. Patent No. 5,755,486 (Wycech) in view of U.S. Patent No. 5,086,080 (Anfuso) and in further view of U.S. Patent No. 5,782,730 (Kawasaki).
3. The final rejection of claims 8-9 and 20-21 under 35 U.S.C. § 103 over U.S. Patent No. 5,755,486 (Wycech) in view of U.S. Patent No. 5,086,080 (Anfuso) and in further view of U.S. Patent No. 4,692,475 (Rowland).
4. The final rejection of claims 10 and 22 under 35 U.S.C. § 103 over U.S. Patent No. 5,755,486 (Wycech) in view of U.S. Patent No. 5,086,080 (Anfuso) and in further view of U.S. Patent No. 5,782,730 (Kawasaki) and U.S. Patent No. 4,692,475 (Rowland) and U.S. Patent No. 5,021,513 (Bagga).

Application No.: 10/759,449

Docket No.: 65765-0085

VII. ARGUMENT

A. Ground of Rejection 1 (Final Rejection of Claims 1-2, 4-7, 11-14 and 16-19 and 23-27 over Wycech in view of Anfuso) Should Be Reversed.1. Claims 1-2 and 4-7 Are Not Obvious Over Wycech in view of Anfuso(a). The Examiner Failed To Establish A *Prima Facie* Case Of Obviousness

It is the Examiner's burden to set forth a *prima facie* case of obviousness in the initial or final Office Action. Section 2142 of the MPEP explains the burden of stating a *prima facie* case of obviousness as follows: (a) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (b) there must be a reasonable expectation of success; and (c) the prior art reference ... must teach ... all the claim limitations. The teaching ... and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. MPEP 2142; *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). In this case, the Examiner has not satisfied at least the first two of these criteria.

(i) The Examiner did not set forth a proper motivation to combine references

For each and every rejection of claims 1-2 and 4-7, the Examiner combined the Wycech reference with the Anfuso reference. However, the Examiner failed to specify a proper motivation to combine Wycech with Anfuso.

Wycech teaches a reinforcement/bonding material having at least 1000 psi and more preferably about 1500 psi of compressive strength. Wycech col. 4 line 28-51. As one of skill in the art would appreciate, the greater the expansion of an uncured foam, the less dense the cured

Application No.: 10/759,449

Docket No.: 65765-0085

foam would be and the lower the compressive strength of the cured foam would be. *See, for example,* a widely used and well known reference to those of skill in the art, "Handbook of Epoxy Resins," by Henry Lee and Kris Neville published in 1967 by McGraw Hill, Chapter 19 and Figure 19-1, reproduced below.

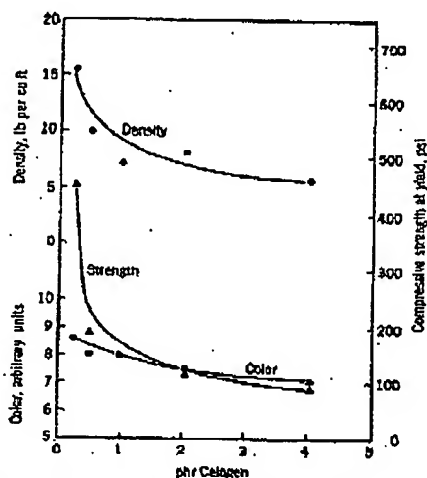


FIG. 19-1. Effect of blowing agent concentration on properties of DGEBA foam [4-6].

The top curve in Figure 19-1 shows that a cured foam's density decreases if the concentration of blowing agent is increased in its formulation. The bottom curve in Figure 19-1 shows that a cured foam's compressive strength decreases if the concentration of blowing agent is increased in its formulation. Thus, it is expected that the greater the expansion of a foam, the less likely it is to retain compressive strength.

There is no reason why one of skill in the art looking to improve upon the reinforcement/bonding material of Wycech would turn to Anfuso, entitled "Process for the Preparation of Expandable Beads." Anfuso has no discussion whatsoever of how to make expandable beads in a way that retains as much compressive strength as possible after substantial expansion. Without any discussion of the retention of compressive strength, there is no reason one of skill in the art looking to improve on the reinforcement/bonding material of Wycech

Application No.: 10/759,449

Docket No.: 65765-0085

would turn to Anfuso. There is simply no motivation to combine these two references.

(ii) The Examiner did not set forth a reasonable expectation of success

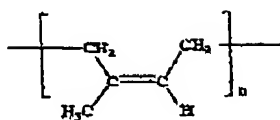
Even if Wycech and Anfuso can be combined, the Examiner did not set forth a reasonable expectation of success—that one of skill in the art would put together the specifically claimed formulation—given the teachings of the two references.

First, the Examiner acknowledged that Wycech did not disclose the SBS block co-polymer required in claims 1-2 and 4-7. The Examiner noted that Wycech disclosed polyisoprene as a possible elastomer to include in the Wycech formulation. Then, the Examiner suggested that, combining Wycech and Anfuso, one of skill in the art would deem the SBS in Anfuso to be an equivalent of polyisoprene. The Examiner then concluded that one of skill in the art would then substitute the polyisoprene of Wycech with the SBS named in Anfuso, and arrive at the claimed composition. This is unsupportable.

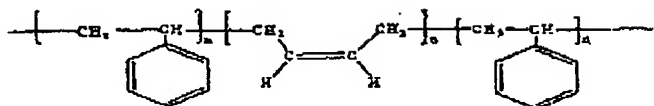
Anfuso does not teach that polyisoprene is an equivalent of SBS block co-polymer. Anfuso col. 4 lines 15-31. Rather, Anfuso merely includes both polyisoprene and SBS in a laundry list of natural and synthetic rubbers that can be used to modify impact resistant polymers. Anfuso col. 4 lines 15-31. The fact is that the chemical structure of polyisoprene is quite different from that of SBS block co-polymer, as illustrated below.

Application No.: 10/759,449

Docket No.: 65765-0085



Polyisoprene:



SBS Block copolymer

Appendix B, Chang Decl. II. Because of their substantial differences in structure, the two chemicals have substantially different functional properties, too. Polyisoprene must undergo cross-linking through vulcanization. In contrast, SBS is not chemically cross-linked. Polymerization of vulcanized polyisoprene is irreversible, where the polymerization of SBS block co-polymer is reversible. SBS block co-polymer has two distinct phases that cause it to become fluid and rubbery at a hot temperature and plastic at a lower temperature. Polyisoprene does not exhibit this property. Chang Decl. II, ¶¶ 2-3. Because of the vast structural and functional differences between polyisoprene with an SBS block co-polymer, one of skill in the art would not have a reasonable expectation of success about substituting polyisoprene for the non-specific SBS identified in Anfuso.

In any event, one of skill in the art would certainly not have a reasonable expectation of success that combining Wycech with Anfuso would result in a composition having the physical properties of the composition of claims 1-2 and 4-7. As described in the specification, these claimed compositions function to expand as much as 80% while maintaining surprisingly high levels of compressive strength. See specification at page 8 lines 10-25 and Example 3 on pages 13-14. Indeed, the specification describes compressive strength levels of at least 1200 psi, 1400

Application No.: 10/759,449

Docket No.: 65765-0085

psi, and 1600 psi following expansion of at least 80%.

In contrast, one of skill in the art would expect that combining Wycech with Anfuso could lead to a composition that would either (1) expand to a great degree or (2) retain a high level of compressive strength, but not both. Thus, the Examiner has not provided sufficient evidence of a reasonable expectation of success to establish a *prima facie* case of obviousness.

(b). If The Examiner Made A *Prima Facie* Case Of Obviousness, Applicant Rebutted The *Prima Facie* Case With Evidence Of Non-Obviousness

If the burden to show non-obviousness of claims 1-2 and 4-7 has shifted to the Appellants, then the Appellants have met that burden. Appellants have demonstrated that the claimed combination of ingredients are a synergistic combination that exhibit surprising results.

For example, the Examiner cites Wycech as the primary reference for its rejection of claims 1-2 and 4-7. Appellants re-created the composition described in Table 1 of the Wycech reference. Appendix B, Chang Decl. I ¶2. Appellants expanded the Wycech composition and tested it for compressive strength. The Wycech composition, when expanded 44%, exhibited a compressive strength of only 1131 psi. Appendix B, Chang Decl. I ¶2. One of skill in the art would have the expectation that by doubling how much the composition (or an obvious modification thereof) is expanded, the compressive strength would be lower than it was at 44% expansion. *See, for example*, Figure 19-1 of the "Handbook of Epoxy Resins," above.

There is no disclosure in either Wycech or Anfuso to suggest that the swapping out of polyisoprene for SBS block co-polymer would turn that expectation on its head. Nor would "routine experimentation," as suggested by the Examiner.

But Appellants have turned that expectation on its head with the claimed formulation. *See, for example*, Example 3. After a 131% expansion of the SBS/polystyrene/rubber/epoxy

Application No.: 10/759,449

Docket No.: 65765-0085

resin formulation, the cured foam maintained a compressive strength of about 1822 psi. *See* specification at page 14. This means that the formulation of Example 3 underwent an expansion three times greater than that of Wycech, and the compressive strength was about 60% greater (not less!) than that of Wycech. This is a surprising result.

For at least the foregoing reasons, this Board should reverse the Section 103 rejections of claims 1-2 and 4-7.

2. Claims 11-14, 16-19 and 23-27 Are Not Obvious Over Wycech in view of Anfuso

Claims 11-14, 16-19 and 23-27 are different from claims 1-2 and 4-7 in that claims 11-14, 16-19 and 23-27 expressly claim some or all of the physical properties that that comprise the surprising result associated with the synergistic combination of ingredients.

For example, claim 13 is identical to claim 1 except that it adds this express language to the claim: "wherein said composition has a compressive strength of at least about 1400 psi and a percent expansion of from about 80-220% upon being expanded by heating to a temperature of at least about 300°F." This language captures the surprising result, in terms of physical properties, of the synergistic combination of ingredients identified in claim 1.

(a). The Examiner Failed To Establish A *Prima Facie* Case Of Obviousness

(i) The Examiner did not set forth a proper motivation to combine references

As discussed above, the Examiner did not set forth a proper motivation to combine Wycech with Anfuso, and that combination is required for all rejections of claims 11-14, 16-19 and 23-27.

Application No.: 10/759,449

Docket No.: 65765-0085

(ii) The Examiner did not set forth a reasonable expectation of success

As discussed above, the Examiner did not set forth a reasonable expectation of success. As applied to claims 11-14, 16-19 and 23-27, it is especially pertinent that the combination of prior art references does not teach that one can achieve a formulation that can expand by from about 80-220% and nevertheless retain substantial compressive strength (which is expressly claimed in claims 12-27). Indeed the cited prior art teaches the opposite. The Wycech composition, when expanded only 44%, had a compressive strength of only 1131 psi. Chang Decl. I.¶ 2. One of skill in the art would expect greater expansion to result in less compressive strength. Thus, one of skill in the art would not reasonably expect the claimed formulation to have the claimed physical properties.

(iii) The prior art references must teach all the claim limitations.

For claims 11-14, 16-19 and 23-27, the physical properties of the claimed formulation are part of the express language of the claims. Neither Wycech nor Anfuso, nor any of the other cited references teach a formulation that a formulation that can expand by from about 80-220% and nevertheless retain substantial compressive strength – at least about 1400 psi in independent claims 12 and 13, and the claims that depend thereon. Thus, the cited prior art references do not teach all the limitations of claims 11-14, 16-19 and 23-27.

(b). If The Examiner Made A *Prima Facie* Case Of Obviousness, Applicant Rebutted The *Prima Facie* Case With Evidence Of Non-Obviousness

Appellants have shown that the expectation of one of skill in the art is that the more a foam is expanded, the less compressive strength it will retain. Appellants have studied the foam of the Examiner's primary reference, Wycech. When the Wycech composition expands 44%, its compressive strength is 1131 psi. One of skill in the art would expect that, even with obvious

Application No.: 10/759,449

Docket No.: 65765-0085

modifications made to the Wycech composition, such as swapping one “equivalent” ingredient for another as the Examiner has suggested, that the more the Wycech formulation is expanded, the lower its compressive strength will be.

In stark contrast to that expectation, the claimed formulation achieved the opposite result. The claimed formulation is expanded twice as much as Wycech, and its compressive strength is greater than Wycech – by about 60% – not less than Wycech, as one of ordinary skill in the art would expect. For at least the foregoing reasons, this Board should reverse the Section 103 rejections of claims 11-14, 16-19 and 23-27.

B. Ground of Rejection 2 (Final Rejection of Claims 3 and 15 over Wycech in view of Anfuso and Kawasaki) Should Be Reversed.

This Final Rejection requires the combination of Wycech and Anfuso, which for all the reasons set forth in detail, above, in Subsection A of the “ARGUMENT” Section is not a proper combination and does not teach all the elements of the independent claims from which dependent claims 3 and 15 depend. The Kawasaki reference does not cure any of the deficiencies of the Wycech reference, even if used in combination with Anfuso. Thus, the combination of Wycech and Anfuso and Kawasaki does not render obvious claims 3 and 15. Accordingly, this Board should reverse the Section 103 rejections of claims 3-15.

C. Ground of Rejection 3 (Final Rejection of Claims 8-9 and 20-21 over Wycech in view of Anfuso and Rowland) Should Be Reversed.

This Final Rejection requires the combination of Wycech and Anfuso, which for all the reasons set forth in detail, above, in Subsection A of the “ARGUMENT” Section is not a proper combination and does not teach all the elements of the independent claims from which dependent claims 8-9 and 20-21 depend. The Rowland reference does not cure any of the deficiencies of the Wycech reference, even if used in combination with Anfuso. Thus, the combination of Wycech and Anfuso and Rowland does not render obvious claims 8-9 and 20-

Application No.: 10/759,449

Docket No.: 65765-0085

21. Accordingly, this Board should reverse the Section 103 rejections of claims 8-9 and 20-21.

D. Ground of Rejection 4 (Final Rejection of Claims 10 and 22 over Wycech in view of Anfuso and Kawasaki and Rowland and Bagga) Should Be Reversed.

This Final Rejection requires the combination of Wycech and Anfuso, which for all the reasons set forth in detail, above, in Subsection A of the "ARGUMENT" Section is not a proper combination and does not teach all the elements of the independent claims from which dependent claims 10 and 22 depend. The Kawasaki, Rowland and Bagga references do not cure any of the deficiencies of the Wycech reference, even if used in combination with Anfuso. Thus, the combination of Wycech and Anfuso and Kawasaki and Rowland and Bagga does not render obvious claims 10 and 22. Accordingly, this Board should reverse the Section 103 rejections of claims 10 and 22.

Dated: August 16, 2006

Respectfully submitted,

By 

Linda D. Kennedy

Registration No.: 44,183

RADER, FISHMAN & GRAUER PLLC

39533 Woodward Avenue

Suite 140

Bloomfield Hills, Michigan 48304

(248) 594-0619

Attorney for Applicant

Application No.: 10/759,449

Docket No.: 65765-0085

VIII. CLAIMS APPENDIX

A clean copy of the claims of Application Serial No. 10/759,449 follow:

1. A composition useful for forming a reinforcing body, said composition comprising:
 - from about 20-30% by weight of an SBS block co-polymer;
 - from about 5-20% by weight polystyrene;
 - from about 0.5-5% by weight of a rubber; and
 - from about 30-45% by weight of an epoxy resin.
2. The composition of claim 1, said composition further comprising from about 0.5-5% by weight of a pigment.
3. The composition of claim 1, said composition further comprising from about 1-10% by weight hydrated amorphous silica.
4. The composition of claim 1, said composition further comprising from about 10-20% glass microspheres.
5. The composite of claim 1, said composition further comprising from about 0.1-5% by weight of a blowing agent.
6. The composition of claim 1, said composition further comprising from about 0.1-

Application No.: 10/759,449

Docket No.: 65765-0085

5% by weight of a catalyst.

7. The composition of claim 1, said composition further comprising from about 0.1-5% by weight of a curing agent.

8. The composition of claim 1, said composition further comprising a compound for lowering the blowing temperature of the composition.

9. The composition of claim 1, wherein said rubber is a nitrile-butadiene rubber and said epoxy resin is a bisphenol A-based liquid epoxy resin, and said composition further comprises:

- from about 0.5-5% by weight of a pigment;
- from about 1-10% by weight hydrated amorphous silica;
- from about 10-20% by weight glass microspheres;
- from about 0.1-5% by weight of a blowing agent;
- from about 0.1-5% by weight of a catalyst;
- from about 0.1-5% by weight of a curing agent; and
- up to about 5% by weight of a compound for lowering the blowing temperature of the composition.

10. The composition of claim 9, wherein said pigment comprises carbon black, said blowing agent comprises azodicarbonamide, said catalyst comprises N,N-dimethyl phenyl urea, said curing agent comprises dicyandiamide, and said compound for lowering the blowing temperature comprises zinc oxide.

Application No.: 10/759,449

Docket No.: 65765-0085

11. A composition useful for forming a reinforcing body, said composition comprising:

- from about 20-30% by weight of an SBS block co-polymer;
- from about 5-20% by weight polystyrene;
- from about 0.5-5% by weight of a rubber; and
- from about 30-45% by weight of an epoxy resin,

wherein said composition has a percent expansion of from about 80-220% after heating thereof to a temperature of at least about 300°F.

12. A composition useful for forming a reinforcing body, said composition comprising:

- from about 20-30% by weight of an SBS block co-polymer;
- from about 5-20% by weight polystyrene;
- from about 0.5-5% by weight of a rubber; and
- from about 30-45% by weight of an epoxy resin,

wherein said composition has a compressive strength of at least about 1400 psi upon being expanded by heating to a temperature of at least about 300°F.

13. A composition useful for forming a reinforcing body, said composition comprising:

- from about 20-30% by weight of an SBS block co-polymer;
- from about 5-20% by weight polystyrene;

Application No.: 10/759,449

Docket No.: 65765-0085

from about 0.5-5% by weight of a rubber; and
from about 30-45% by weight of an epoxy resin,
wherein said composition has a compressive strength of at least about 1400 psi and a
percent expansion of from about 80-220% upon being expanded by heating to a temperature of
at least about 300°F.

14. The composition of claim 13, said composition further comprising from about
0.5-5% by weight of a pigment.

15. The composition of claim 13, said composition further comprising from about 1-
10% by weight hydrated amorphous silica.

16. The composition of claim 13, said composition further comprising from about 10-
20% glass microspheres.

17. The composite of claim 13, said composition further comprising from about 0.1-
5% by weight of a blowing agent.

18. The composition of claim 13 said composition further comprising from about 0.5-
5% by weight of a catalyst.

19. The composition of claim 13, said composition further comprising from about
0.1-5% by weight of a curing agent.

Application No.: 10/759,449

Docket No.: 65765-0085

20. The composition of claim 13, said composition further comprising a compound for lowering the blowing temperature of the composition.

21. The composition of claim 13, wherein said rubber is a nitrile-butadiene rubber and said epoxy resin is a bisphenol A-based liquid epoxy resin, and said composition further comprises:

from about 0.5-5% by weight of a pigment;

from about 1-10% by weight hydrated amorphous silica;

from about 10-20% by weight glass microspheres;

from about 0.1-5% by weight of a blowing agent;

from about 0.1-5% by weight of a catalyst;

from about 0.1-5% by weight of a curing agent; and

up to about 5% by weight of a compound for lowering the blowing temperature of the composition.

22. The composition of claim 21, wherein said pigment comprises carbon black, said blowing agent comprises azodicarbonamide, said catalyst comprises N,N-dimethyl phenyl urea, said curing agent comprises dicyandiamide, and said compound for lowering the blowing temperature comprises zinc oxide.

23. A composition of claim 13 wherein the percent expansion is from about 95% to about 200%.

Application No.: 10/759,449

Docket No.: 65765-0085

24. A composition of claim 23 wherein the compressive strength is at least about 1600 psi.
25. A composition of claim 13 wherein the percent expansion is from about 129% to about 147%.
26. A composition of claim 25 wherein the compressive strength is from about 1422 psi to about 2129 psi.
27. A composition of claim 25 wherein the compressive strength is at least about 1600 psi.

Application No.: 10/759,449

Docket No.: 65765-0085

IX. EVIDENCE APPENDIX

Declaration 1 of inventor are included Chin-Jui Chang, dated October 16, 2002.

Declaration 2 of inventor are included Chin-Jui Chang, dated October 16, 2002.

RECEIVED
CENTRAL FAX CENTER

AUG 16 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of

CHANG, CHIN-JUI et al

Serial No.: 09/572,754

Filed: May 16, 2000

SOUND DEADENING AND STRUCTURAL
REINFORCEMENT COMPOSITIONS AND
METHODS OF USING THE SAME

Docket No.: 26845-B

Group Art Unit No.: 1772

Examiner: M. Patterson

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

DECLARATION 1

1. CHIN-JUI CHANG, declare and state as follows:

1. I am one of the inventors named on the above-referenced patent application. I am a group leader in the Structural Materials section of Silca Corporation.

2. Under my direction and control, the composition set forth in Table 1 of this Declaration was used to prepare a composition following the procedures described in the text of U.S. Patent No. 5,755,486 to Wytech which was cited by the Examiner in the second office action of this application. The percent expansion and compressive strength of the Wytech composition was determined and is reported in Table 1 below. The composition reported in Table 1 corresponds exactly to the preferred formulation of Table 1 in the Wytech '486 patent.

Serial No. 09/572,754

Docket No. 26845-B

Ingredient	Trade Name	Composition
Epoxy Resin	Araldite 6010 ¹	50.45% ²
Acrylonitrile-Butadiene Rubber	Nipol 1312 LV	4.33%
Calcium Carbonate	Winnifil SPT	5.81%
Carbon Black	Black Powder	0.13%
Fumed Silica	Cab-O-Sil TS720	3.55%
High Strength Glass Spheres	B38	22.4%
Curing Agent	Dicyandiamine G	4.33%
Accelerator	Amicure UR	1.29%
Blowing Agent	Celogen OT	0.71%
Volume Expansion, %		44.0% \pm 0.1
Compressive Strength, psi		1131.0 psi \pm 143.2

¹ A liquid bisphenol-A based epoxy resin.² These percentages by weight correspond to the percentages by weight given in Table 1 of the Wycech patent.

3. These data clearly demonstrate that the compositions taught by Wycech do not exhibit sufficient volumetric expansion or compressive strength for use in structural reinforcement applications according to the invention. Wycech does not disclose a reinforcing composition which has a percent expansion of from about 80-220% as is recited by claims 11, 16, and 18 of the patent application. Furthermore, Wycech does not disclose a composition having a compressive strength of at least about 1400 psi as is recited by claim 12 and 17 of the patent application. By comparison, the present application discloses a compressive strength of at least about 1400 psi on page 8, line 24, and a percent expansion of

Serial No. 09/572,754

Docket No. 24845-5

from about 80-220% on page 8, line 17. A specific example is provided in Example 3 which provides a composition meeting all of the claim limitations of the independent claims.

I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that wilful, false statements and the like are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and such wilful false statements may jeopardize the validity of any patents issued from the patent application.

Any additional fee which is due in connection with this Declaration should be applied against Deposit Account No. 19-0522.


Chin-Jui Chang

Date: 10-16-2002

RECEIVED
CENTRAL FAX CENTER

AUG 16 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

CHANG, CHIN-JUI et al.

Serial No.: 09/572,754

Filed May 16, 2000

SOUND DEADENING AND STRUCTURAL
REINFORCEMENT COMPOSITIONS AND
METHODS OF USING THE SAME

Docket No.: 26845-B

Group Art Unit No.: 1772

Examiner: M. Patterson

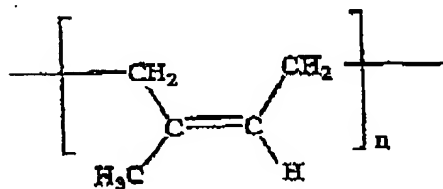
Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

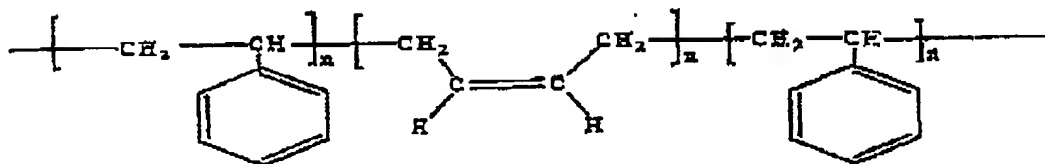
DECLARATION 2

I, CHIN-JUI CHANG, declare and state as follows:

1. I am one of the inventors named on the above-referenced patent application. I am a group leader in the Structural Materials section of Sika Corporation.
2. Polyisoprene and SBS Block copolymer are fundamentally dissimilar because polyisoprene is a diene rubber that is a vulcanizable elastomer while SBS Block copolymer is a thermoplastic elastomer. Vulcanizable elastomers must be crosslinked by heating to provide strength and toughness, and are soft at room temperature. SBS Block copolymer can be handled like a thermoplastic elastomer and provides strength and toughness at room temperature without vulcanization. Upon cooling, SBS Block copolymer becomes hard and plastic. The structures of polyisoprene and SBS Block copolymer are as follows:

Serial No. 09/572,754Docket No. 26345-B

Polyisoprene



SBS Block copolymer

Serial No. 09/572,754Docket No. 26845-B


3. As is evident from these structures, SBS Block copolymer and polyisoprene are structurally very dissimilar. The structural characteristics of the SBS Block copolymer and polyisoprene clearly impart functional properties that are not consonant with one another. This is critical to an appreciation of why polyisoprene and SBS Block copolymer are not interchangeable for use in the present application. SBS Block copolymer is not covalently bonded, while polyisoprene is covalently bonded. Polyisoprene must undergo a chemical process of crosslinking called vulcanization which results in a homopolymer having covalent bonds. The polymer process for SBS Block copolymer is reversible unlike that for vulcanized polyisoprene. In contrast, SBS Block copolymer is unique because it is not chemically crosslinked. Therefore, it is more easily processed and can be shaped more readily. By virtue of being a thermoplastic elastomer, SBS Block copolymer has two distinct phases that cause it to become fluid and rubbery at higher temperatures and hard and plastic at lower temperatures, making SBS Block copolymer ideal for use in structural foams for reinforcing hollow bodies. Polyisoprene lacks such characteristics and properties.

4. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that wilful, false statements and the like are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code, and such wilful false statements may jeopardize the validity of any patents issued from the patent application.

Serial No. 09/572,754

Docket No. 25845-B

Any additional fee which is due in connection with this Declaration should be applied against
Deposit Account No. 19-0522.


Chia-Jui Chang

Date: 10-16-2002

Application No.: 10/759,449

Docket No.: 65765-0085

X. RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in II above, or copies of decisions in related proceedings are not provided, as there are none. Thus, this Appendix is included and has no content.

PTO/SB/97 (08-04)

Approved for use through 07/31/2008. OMB 0651-0031

U. S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

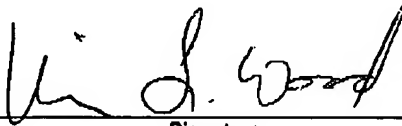
Application No. (if known): 10/759,449

Attorney Docket No.: 65765-0085

Certificate of Transmission under 37 CFR 1.8

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office.

on August 16, 2006 .
Date



Signature

Victoria L. Wood

Typed or printed name of person signing Certificate

Registration Number, if applicable

(248) 593-3328

Telephone Number

Note: Each paper must have its own certificate of transmission, or this certificate must identify each submitted paper.

Amended Appeal Brief (34 pages)

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.